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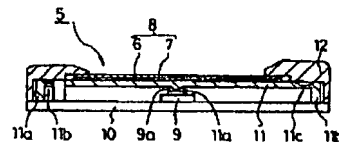
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(54) [Title of the Device] Tablet with a Switch

(57) [Abstract]

[Object] This device relates to a tablet of an input device, and the object of this device is to solve the problem of poor operability of input operation that involves a double action.

[Configuration] A tablet 8 comprising a substrate sheet laminated with a conducting film and having a predetermined spacing between two electrode materials 6 and 7 provided on the electrode surfaces, the electrode surfaces being disposed in parallel so as to oppose [each other]; the tablet being provided with a mechanical switch 9, spaced apart from one of the electrode materials 6 by a predetermined gap, and operating when pressed by the one electrode material 6. As a result, in a tablet that moves the cursor to a desired position, input confirmation can be performed at that same location with a single-location continuous pressing operation.



## [CLAIM OF UTILITY MODEL APPLICATION]

[CLAIM 1] A tablet with a switch characterized by a tablet comprising a substrate sheet laminated with a conducting film, and having a predetermined spacing between two electrode materials provided on the electrode surface [thereof], the electrode surfaces being disposed in parallel so as to oppose [each other]; the tablet being provided with a mechanical switch spaced apart from one of the electrode materials by a predetermined gap, and operating when pressed by the one electrode material.

## [BRIEF EXPLANATION OF THE DRAWINGS]

[Fig. 1] is a longitudinal view of a tablet with a switch of the present device.

[Fig. 2] is a plan view of the same tablet with a switch.

[Fig. 3] is a longitudinal view for explaining the usage state of the same tablet with a switch.

[Fig. 4] is a longitudinal view for explaining

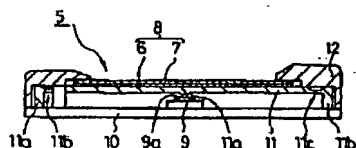
the usage state of the same tablet with a switch.

[Fig. 5] is a perspective view for explaining tablet usage in a conventional example.

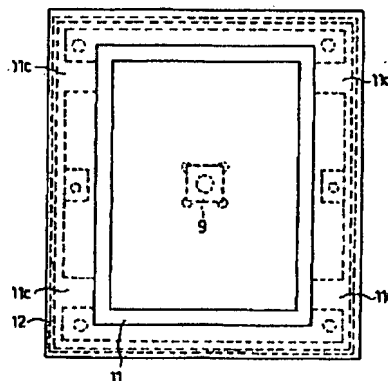
## [EXPLANATION OF REFERENCE NUMERALS]

|      |                      |
|------|----------------------|
| 5    | Tablet with a switch |
| 6, 7 | Electrode material   |
| 8    | Tablet               |
| 9    | Mechanical switch    |
| 9a   | Salient part         |
| 10   | Printed substrate    |
| 11   | Hinge unit           |
| 11a  | Protrusion           |
| 11b  | Leg part             |
| 11c  | Hinge part           |

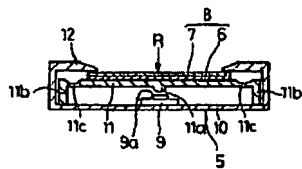
[FIG. 1]



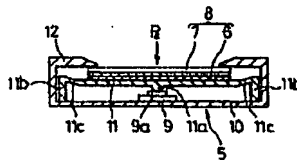
[FIG. 2]



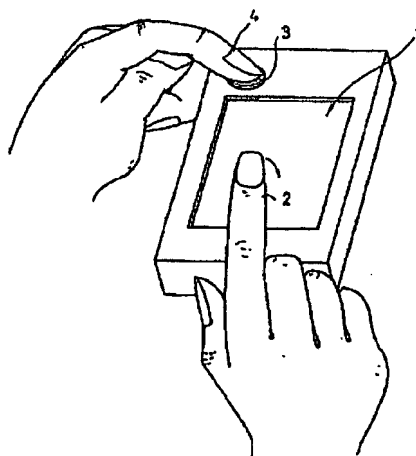
[FIG. 3]



[FIG. 4]



[FIG. 5]



[DETAILED EXPLANATION OF THE DEVICE]

[0001]

[INDUSTRIAL FIELD OF APPLICATION]

The present device relates to a tablet of an input device provided in an electronic and electric device or other apparatus.

[0002]

[PRIOR ART]

Previously, a touch panel 1, as shown in FIG. 5, was used as an input device to move or otherwise manipulate a cursor on a display. The touch panel was constructed by forming electrode materials coated with a transparent conductive film on a substrate sheet of polyester film with electrode materials positioned so as to oppose the electrode surfaces [thereof] and a protruding insulation dot spacer provided on the electrode surface of one of the electrode materials. When a finger or the like applies pressure to the sheet surface of the aforementioned one electrode material, the transparent conductive film forms an electrical short circuit, and each touched position is detected by a control circuit connected to a matrix array of electrodes, or by digitally-converted data of an electric potential gradient that is transmitted to a control circuit.

[0003]

[PROBLEM TO BE SOLVED BY THE DEVICE]

However, with the touch panel 1 formed by the resistive film method described above, the cursor on the display moves only in a predetermined direction and in a predetermined amount according to position detection at the location touched by an operator's finger 2.

[0004]

Accordingly, for example, after moving the cursor on the display to a desired position, the input of an input confirmation, command, or the like, was required by moving a separate confirm input switch 3 with a finger 4 of the other hand, or with the finger 2, and applying pressure.

[0005]

In this way, in the input operation of a conventional touch panel having a mouse function, after moving the cursor to the desired position, an additional input operation must be performed using both hands, or by moving one hand, to press an input confirmation key, command key or the like at a separate location. The input operation involved a double action and there was a problem of poor operability.

[0006]

Accordingly, conventional touch panels used in the input devices of electronic and electric devices such as consumer devices and the like have a problem to be solved that involves input operability.

[0007]

[MEANS TO SOLVE THE PROBLEM]

In summary, the aforementioned problem is solved and the aforementioned object is achieved with a tablet comprising a substrate sheet laminated with a conducting film, and having a predetermined spacing between two electrode materials provided on the electrode surfaces, the electrode surfaces being disposed in parallel so as to oppose [each other]; the tablet being provided with a mechanical switch spaced apart from one of the electrode materials by a predetermined gap, and operating when pressed by the one electrode material.

[0008]

[USE]

In accordance with the tablet with a switch of the present device, the operator presses the tablet surface with a finger or the like, and moves the cursor to the desired position. Then, input confirmation can be performed at that cursor position by again pressing the aforementioned finger or the like at the same position. As a result, the inconvenience of having to move the aforementioned finger or the like or of performing a complicated operation requiring the use of both hands to press an input confirmation switch at another location is eliminated, and in a tablet that moves the cursor to the desired position, input confirmation can be performed with a continuous pressing operation at a single location.

[0009]

[EMBODIMENT]

Below, an embodiment of the present device is explained with reference to drawings. FIG. 1 is a longitudinal view of a tablet with a switch 5 of the present device. The tablet with a switch 5 has separate individual input switches.

[0010]

In further detail, the tablet with switch 5 is constructed from a tablet 8 comprising a conductive film laminated on a substrate sheet, having a predetermined spacing between electrode materials 6 and 7 provided on electrode surfaces that are disposed in a parallel arrangement so as to oppose [one another], and a mechanical switch 9, having a predetermined spacing from one electrode material 6 side, and operating when pressed by the one electrode material 6.

[0011]

The mechanical switch 9 is attached on a printed circuit board 10, and a vertically-moving salient part 9a of the switch is pressed by a protrusion 11a of a hinge unit disposed between the mechanical switch 9 and the electrode material 6 of the tablet 8 to turn the mechanical switch 9 ON and OFF electrically.

[0012]

The hinge unit 11 is an insulated body made of plastic or the like, having a rectangular shape in plan view, and is formed with a hinge part 11c having a constricted area that connects the top plate surface [of the hinge unit] to a leg part 11b. As shown in FIG. 2, the top plate surface [of the hinge unit] and the leg part 11b are connected to the hinge part 11c at four locations.

With the hinge part 11c, after the hinge unit 11 has been pressed downward and the pressing force released, an elastic force causes [the hinge unit 11] to move upward and return to the original position. The extent of the constricted area is determined by design, according to the elastic force of the material.

The hinge unit 11 is not limited to being made of plastic, and may also be formed from synthetic rubber.

[0013]

Also, with the hinge unit 11, the elastic force of the hinge part 11c provides resistance so that the tablet 8, pressed with a finger or the like, is not pressed downward by a force sufficient to establish an electrical connection. As a result, the tablet 8 is pressed with a "soft-touch" by a finger or the like, and the cursor moves to the desired position. Furthermore, by pressing down strongly with a finger or the like at the same [location], the salient part 9a of the mechanical switch 9 disposed between the tablet 8 and the hinge unit 11 is pressed, and enters the ON state, thereby establishing an electrical connection and performing the input confirmation.

[0014]

By using the tablet with switch 5 of the present invention, formed as described above, as shown in FIG. 3, the operator uses a finger or the like to press the electrode material 7 on the upper side of the tablet 8 of the tablet with switch 5 disposed in the input device of an electronic and electrical device or other apparatus.

[0015]

As a result of a "soft-touch" (pressing force  $P_1$ ) by this finger, the electrode surfaces of the electrode materials 6 and 7 having a predetermined spacing therebetween make contact, establishing an electrical connection, and the cursor on the display moves to a predetermined position.

[0016]

Furthermore, as shown in FIG. 4, if the tablet 8 is pressed down with a stronger force ( $P_2$ ) than the "soft-touch", the electrode materials 6 and 7, making contact [with one another], press down the top plate surface of the hinge unit 11, and a protrusion 11a provided on the bottom surface of the hinge unit 11 applies pressure to the salient part 9a of the mechanical switch 9, causing the mechanical switch 9 to enter the ON state. As a result, the input is confirmed and a command, at the location to which the cursor was moved, is executed.

[0017]

Next, when the pressing finger or the like is released, the elastic force of the hinge part 11c at four locations of the hinge unit 11 causes [the hinge unit] to return upward, and at the same time, the tablet 8, which was being pressed down, is raised up and returns to its original position.

[0018]

In this manner, the tablet with switch 5 makes it possible to perform cursor movement and input confirmation at a single location via the tablet 8. Moreover, a membrane switch may also be used to constitute a single-location continuous pressing operation as in the tablet with switch 5 of the present device.

[0019]

#### [EFFECT OF THE DEVICE]

As described above, the tablet with switch of the present device is a tablet comprising a substrate sheet laminated with a conducting film, and having a predetermined spacing between two electrode materials provided on the electrode surfaces, the electrode surfaces being disposed in parallel so as to oppose [each other]; the tablet being provided with a mechanical switch spaced apart from one of the electrode materials by a predetermined gap, and operating when pressed by the one electrode material. Therefore, in a tablet that moves the cursor to a desired position, input confirmation can be performed at that same location with a single-location continuous pressing operation, the inconvenience of having to move the aforementioned finger or the like or of performing a complicated operation requiring the use of both hands to press an input confirmation switch at another location is eliminated, and the excellent effect of improved operability is achieved.